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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,339	01/04/2005	Peter Albert Cirkel	NL02 0620 US	2598

24738 7590 09/19/2006

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EXAMINER

BRIGGS, NATHANAEL R

ART UNIT PAPER NUMBER

2871

DATE MAILED: 09/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/520,339

Applicant(s)

CIRKEL ET AL.

Examiner

Nathanael Briggs

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 1/4/2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

2. Claim 24 is objected to because of the following informalities: The multiple-dependent language "any one of" refers only to claim 20, wherein it should have been eliminated in the preliminary amendment. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-5, 7, 9-11, and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Faris et al. (US 2002/0085151).
5. Regarding claim 1, Faris discloses an apparatus (see figure 10F, for instance) having a first cell (22A), said first cell (22A) comprising a plurality of first elements, said first elements being controllable between a non-reflective state, in which electromagnetic radiation having a first polarization is reflected to a first extent, and a reflective state, in which said electromagnetic radiation having a first polarization is

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reflected to a second extent, said second extent being greater than said first extent ([0215]-[0218]); and a second cell (22B), superimposed on the first cell (22A), said second cell (22B) comprising a plurality of second elements, said second elements being controllable between a non-reflective state, in which electromagnetic radiation having a second polarization is reflected to a third extent, and a reflective state, in which said electromagnetic radiation having a second polarization is reflected to a fourth extent, said fourth extent being greater than said third extent ([0215]-[0218]), characterized in that said first and second elements are arranged so that said first polarization is different from said second polarization ([0216]). Claim 1 is therefore unpatentable.

6. Regarding claim 2, Faris discloses an apparatus according to claim 1 (see figure 10F, for instance), wherein the electromagnetic radiation has a wavelength of between 300 nm and 800 nm ([0160]). Claim 2 is therefore unpatentable.

7. Regarding claim 3, Faris discloses an apparatus according to claim 1 (see figure 10F, for instance), wherein said first polarization (LHCP) and said second polarization (RHCP) are circular polarizations of opposite handedness. Claim 3 is therefore unpatentable.

8. Regarding claim 4, Faris discloses an apparatus according to claim 1 (see figure 10F, for instance), wherein a polarization-altering element (21) is arranged between said first (22A) and second cells (22B). Claim 4 is therefore unpatentable.

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9. Regarding claim 5, Faris discloses an apparatus according to claim 4 (see figure 10F, for instance), wherein said polarization-altering element (21) is a halfwave plate ([0218]). Claim 5 is therefore unpatentable.

10. Regarding claim 7, Faris discloses an apparatus according to claim 1 (see figure 10F, for instance), wherein said first (22A) and second cells (22B) are at a certain distance from each other. Claim 7 is therefore unpatentable.

11. Regarding claim 9, Faris discloses an apparatus according to claim 1 (see figure 10F, for instance), wherein said first and second electromagnetic radiation have different wavelengths ([0212], lines 10-18). Claim 9 is therefore unpatentable.

12. Regarding claim 10, Faris discloses an apparatus according to claim 1 (see figure 10F, for instance), wherein at least one of said first (22A) and second (22B) cells is at least partially made of cholesteric texture liquid crystal ([0220]). Claim 10 is therefore unpatentable.

13. Regarding claim 11, Faris discloses a reflective display (see figure 10, for instance) comprising an apparatus according to claim 1 ([0037], lines 7-9). Claim 11 is therefore unpatentable.

14. Regarding claim 14, Faris discloses a method of providing varying brightness in an apparatus as defined in claim 1 (see figure 10, for instance), the method comprising the steps of manipulating elements in one of said first (22A) and second (22B) cells into their reflective state when a lower brightness is desired ([0040]), and manipulating essentially superimposed elements in both of said first (22A) and second (22B) cells

into their reflective state when a higher brightness is desired ([0040]). Claim 14 is therefore unpatentable.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 6, 8, 12-13, 15-17, 19-20, and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Faris et al. (US 2002/0085151) in view of Witehira et al. (US 6,906,762).

17. Regarding claim 6, Faris discloses an apparatus according to claim 1 (see figure 10, for instance). However, Faris does not expressly disclose wherein at least one lens is arranged between said first and second cells.

18. Regarding claim 6, Witehira discloses an apparatus similar to Faris (see figure 5, for instance), wherein at least one lens (12) is arranged between said first (1) and second cells (16).

19. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the lens of Witehira in the apparatus of Faris. The motivation for doing so would have been to widen the viewing angle substantially, as taught by Witehira (column 2, lines 40-45). Claim 6 is therefore unpatentable.

20. Regarding claim 8, Faris in view of Witehira discloses an apparatus according to claim 6, and Witehira further discloses wherein said first (1) and second (16) cells are

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arranged to transmit a first and a second image to the first and the second eye of an observer (column 2, lines 28-33). It would have been obvious to use the cell arrangement of Witehira in the apparatus of Faris. The motivation for doing so would have been to attain an improved display device while incorporate improved depth imaging, as taught by Witehira (column 4, lines 46-48). Claim 8 is therefore unpatentable.

21. Regarding claims 12-13, Faris in view of Witehira disclose the reflective display according to claim 11 (see Faris figure 10 and Witehira figure 5, for instance), and Witehira further discloses a portable device comprising a reflective display according to claim 11, wherein said device is one of a mobile telephone, a portable computer, an electronic calendar, an electronic book, a television set or a video game control (column 3, lines 66-67; column 4, lines 1-4). It would have been obvious to use Faris' apparatus as a portable reflective display such as Witehira's. The motivation for doing so would have been to incorporate displaying depth while allowing for motion parallax, true convergence, and wide angle of view without the viewing restrictions of prior art displays, as taught by Witehira (column 6, lines 10-15). Claims 12-13 are therefore unpatentable.

22. Regarding claim 15, Faris in view of Witehira discloses a method of providing varying brightness in an apparatus as defined in claim 1 (see Faris figure 10 and Witehira figure 7, for instance), and Witehira further discloses wherein said apparatus additionally comprising at least a third cell (3), said third cell (3) comprising third elements, said elements being controllable between a non-reflective state, in which third

electromagnetic radiation having a third polarization is reflected to a fifth extent, and a reflective state, in which said third electromagnetic radiation is reflected to a sixth extent, said sixth extent being greater than said fifth extent, said method comprising the steps of manipulating essentially superimposed elements in a number N of cells, N being equal to or greater than one but smaller than the total number of cells, into their reflective state when a lower brightness is desired (column 5, lines 28-30), and manipulating essentially superimposed elements in a number $N+1$ of cells into their reflective state when a higher brightness is desired (column 5, lines 38-40). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the method of Witehira in the apparatus of Faris. The motivation for doing so would have been to attain the appearance of infinite depth by using the three cell method, as taught by Witehira (column 5, lines 47-50).

23. Regarding claims 16-17, Faris in view of Witehira discloses a method of providing two images in a reflective display according to claim 11 (see Faris figure 10 and Witehira figures 7 and 8, for instance), the method comprising the steps of manipulating the first elements (1) to reflect electromagnetic radiation in the shape of a first image, said first image consisting of electromagnetic radiation having a first polarization, manipulating the second elements (16) to reflect electromagnetic radiation in the shape of a second image, said second image consisting of electromagnetic radiation having a second polarization, and manipulating the third elements (3) to reflect electromagnetic radiation in the shape of a third image, said third image consisting of electromagnetic radiation having a third polarization. It would have been obvious to one

of ordinary skill in the art at the time of the invention to use the method of Witehira in the apparatus of Faris. The motivation for doing so would have been to add greater depth to the display by adding layers, as taught by Witehira (column 2, lines 38-39). Claims 16-17 are therefore unpatentable.

24. Regarding claim 19, Faris in view of Witehira discloses a method according to claim 16 (see Faris figure 10 and Witehira figure 2, for instance), wherein said method comprises the step of arranging said first (1) and second (16) cells to transmit said first and second images in different directions (7,9). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the method of Witehira in the apparatus of Faris, motivated by the teachings of Witehira elucidated in the arguments of the rejection of claims 12-13 above. Claim 19 is therefore unpatentable.

25. Regarding claims 20 and 23, Faris in view of Witehira discloses a method according to claim 19 (see Faris figure 10 and Witehira figures 7 and 8, for instance), and Faris further discloses wherein said first (22A) and second (22B) cells are arranged to transmit a first and a second image to a first and a second eye of an observer, and wherein said first and second images are identical ([0215]). Claims 20 and 23 are therefore unpatentable.

26. Regarding claim 24, Faris in view of Witehira discloses a method according to claim 20 (see Faris figure 10 and Witehira figures 7 and 8, for instance), wherein said first (1) and second (16) images are perspective views creating a 3D sensation when observed (column 5, lines 18-19). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the method of Witehira in the apparatus of

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Faris, motivated by the teachings of Witehira elucidated in the arguments of the rejection of claims 16-17 above. Claim 24 is therefore unpatentable.

27. Claims 18 and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Faris et al. (US 2002/0085151) in view of Witehira et al. (US 6,906,762) as applied to claims 6, 8, 12-13, 15-17, 19-20, and 23-24 above, and further in view of Faris (b) (US 5,537,144).

28. Regarding claims 18 and 21-22, Faris in view of Witehira discloses a method according to claim 16 (see Faris figure 10 and Witehira figures 7 and 8, for instance). However, Faris in view of Witehira does not expressly disclose wherein said method comprises the steps of: providing at least two separate filter elements, a first of said two filter elements being capable of transmitting electromagnetic radiation having said first polarization and not transmitting electromagnetic radiation having said second polarization, and a second of said two filter elements being capable of transmitting electromagnetic radiation having said second polarization and not transmitting electromagnetic radiation having said first polarization, arranging the first filter element between the reflective display and any intended receiver of a first image, produced by the first elements, and arranging the second filter element between the reflective display and any intended receiver of a second image, produced by the second elements; or wherein the first and second filter elements are arranged in front of the left and the right eye, respectively, of an observer; or wherein a first image and a second image are adapted to coincide with the left and the right eye of an observer.

29. Regarding claims 18 and 21-22, Faris (b) discloses a method of providing two images in a reflective stereoscopic apparatus (see figures 10 and 16a, for instance), wherein said method comprises the steps of providing at least two separate filter elements (P2, P1), a first (P2) of said two filter elements being capable of transmitting electromagnetic radiation having said first polarization and not transmitting electromagnetic radiation having said second polarization, and a second (P1) of said two filter elements being capable of transmitting electromagnetic radiation having said second polarization and not transmitting electromagnetic radiation having said first polarization (column 9, lines 25-33), arranging the first (P2) filter element between the reflective display and any intended receiver (9) of a first image, produced by the first elements, and arranging the second filter (P1) element between the reflective display and any intended receiver of a second image, produced by the second elements; or wherein the first (P2) and second (P1) filter elements are arranged in front of the left and the right eye, respectively, of an observer (9); or wherein a first image and a second image are adapted to coincide with the left and the right eye of an observer (9, column 13, lines 46-55).

30. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the method of Faris (b) in the apparatus of Faris in view of Witehira. The motivation for doing so would have been to use a 3-D technology that is inexpensive to manufacture and can be used for general purpose imaging in applications such as TV, motion pictures, and computer graphics, as taught by Faris (b) (column 7, lines 1-5). Claims 18 and 21-22 are therefore unpatentable.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathanael Briggs whose telephone number is (571) 272-8992. The examiner can normally be reached on 8:30 AM to 5:00 PM (EST) Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nathanael Briggs
September 14, 2006


ANDREW SCHECHTER
PRIMARY EXAMINER